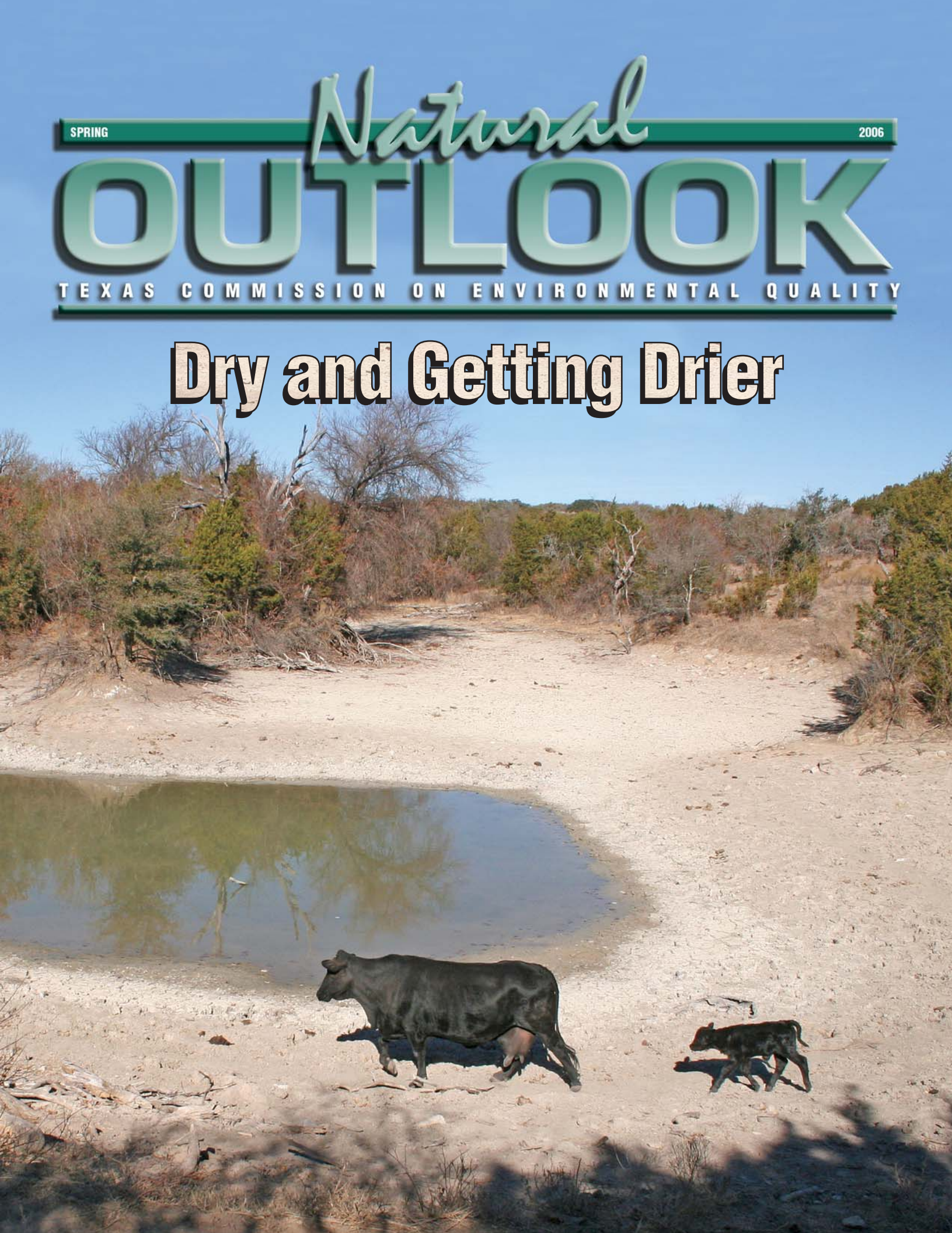
SPRING 2006

Natural OUTLOOK

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Dry and Getting Drier



Natural Outlook is published quarterly by the Agency Communications Division at the Texas Commission on Environmental Quality

Commissioners
Kathleen Harnett White, Chairman
Larry R. Soward

Executive Director
Glenn Shankle

***Natural Outlook* Staff**

Agency Communications Director
Andy Saenz

Publishing Manager
Renee Carlson

Editor and Writer
Jorjanna Price

Art Director
Bill Crimm

Copy Editor
Victor Guerra

Visit our Web site:
www.tceq.state.tx.us

For a free subscription, write to *Natural Outlook*, MC 195, TCEQ, PO Box 13087, Austin, TX 78711-3087. Or phone 512/239-0010; e-mail ac@tceq.state.tx.us; or fax 512/239-5010.

Instead of receiving this newsletter in the mail, readers can get an e-mail alert when *Natural Outlook* is available to view on the TCEQ Web site. To sign up for that option, visit **www.tceq.state.tx.us/goto/outlook**. The page also includes information on renewing subscriptions.

printed on recycled paper using soy-based ink

Natural OUTLOOK

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Informing Texans about important natural resource issues

Photograph by the Texas Forest Service

Cover: Low water supply is evident on this ranch property in Erath County, northwest of Waco. Many parts of the state have been feeling the effects of drought for months. Photo by Yoana Newman, Texas A&M University Research and Extension Center, Stephenville.

Photograph by Texas A&M University

Dry Times Ahead

Drought already has made its mark on 2006

A persistent pattern of unusually dry and windy conditions set the stage for hundreds of blazes breaking out in the Panhandle. The fires spread with remarkable speed, burning thousands of acres, destroying homes, and wiping out livestock. This fire in Gray County destroyed corrals and grassland but only scorched the family home.

The term of art is "flash drought." That's how meteorologists describe a dry spell that quickly turns bad. It can occur when a drought-prone area goes just a few weeks without rain. Temperatures escalate, and subsurface moisture levels drop. Suddenly, a seemingly harmless dry spell turns critical: lake levels are falling and crops begin dying.

It's a condition that some regions of Texas could see in the coming months.

"We're vulnerable this summer," explains John Nielsen-Gammon, the state climatologist at Texas A&M University. "The problem is that the fall and winter were exceptionally dry across most of state. And even though we had normal rainfall in many places during springtime, there's still a deficit of soil moisture in a lot of places."

State agencies concerned with water resources, agriculture, and natural habitat are tracking weather, reservoir levels, and soil conditions on a daily basis—due to an unusual 12-month period preceding this spring. The rainfall from March 2005 to February 2006 was one of the lowest on record, says Nielsen-Gammon.

Indeed, 2006 has already been a year to remember. Thousands of wildfires have plagued many areas of the state, as weather conditions stalled in a pattern of dry and windy. Burn bans have been in effect for much of the year, but they failed to avert catastrophic fires in the Panhandle that burned a million acres, claimed the lives of 11 residents, and wiped out many herds of cattle.

Major crop losses have been attributed to rainfall deficits, and livestock producers have been thinning their herds for lack of feed.

Conditions in South Texas appear to be the most critical as agricultural interests and municipalities watch rain gauges remain empty. Dryland farmers in that region say they are writing off the year as a loss.

Fifteen state agencies, including the TCEQ, are working

through the Drought Preparedness Council at the Governor's Department of Emergency Management (DEM) to help Texans prepare for a long summer.

Fire Danger

High winds and low humidity have proved to be a lethal combination as firefighters have battled blazes across the state. From December through mid-April, about 10,700 wildfires occurred, affecting a total of 1.5 million acres.

The Texas Forest Service reported that more than 600 structures were lost to fire. Tanker helicopters working west of Interstate 35 had scooped up 5.4 million gallons of water from rivers, lakes, and stock ponds. Water also was used in 11,750 gallons of fire retardant employed in rescue efforts.

Photograph by the Texas Forest Service

Fires were so prevalent during March that firefighters from other states were called for assistance. This fenceline fire near Amarillo contributed to a record-setting day on March 12.

Crews and equipment from around Texas and neighboring states responded to the Panhandle when fast-moving fires raged out of control for one week. That event set a one-day record when 1 million acres were ablaze on March 12.

Due to the risky weather conditions, burn bans have been in effect throughout much of the state. In April, 144 of the state's 254 counties were prohibiting outdoor burning.

Meanwhile, the DEM has expressed concern about the fire potential near urban areas. Suburban neighborhoods around Austin or San Antonio, for example, have expanded into natural areas that are thick with brush and trees.

Water Utilities on Alert

The TCEQ began preparing for drought early this year when indicators spelled trouble. A prolonged lack of rainfall has a

Checking Conditions

There are several ways to track regional weather and soil conditions. Here are some of the leading indices, which are posted by the Texas Water Development Board at www.twdb.state.tx.us.

Palmer Drought Severity Index: **Reflects meteorological drought as well as precipitation, evaporation, and soil moisture. Used to predict drought that will last several months.**

Crop Moisture Index: **Monitors short-term moisture conditions across major crop-producing regions. Helpful in tracking pre-drought development.**

Six-Month Standardized Precipitation Index: **Shows the probability for precipitation for any six-month time scale.**

Also, the Office of the State Climatologist displays state and U.S. weather data at www.met.tamu.edu/met/osc/.

Outdoor burn bans and local disaster declarations are updated by the Texas Forest Service at www.tamu.edu/ticc.

The TCEQ "watch" map of public water systems instituting drought contingency plans can be found at www.tceq.state.tx.us/permitting/water_supply/pdw/trot/location.html.

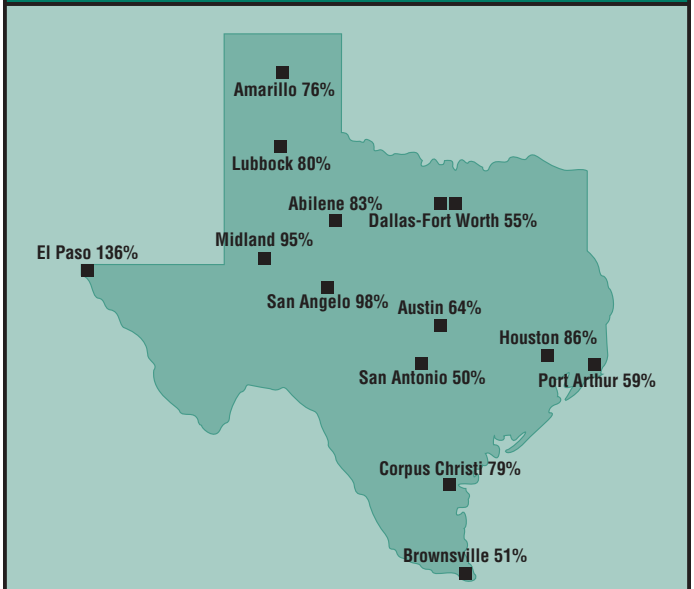
For other drought-related links from the TCEQ, go to www.tceq.state.tx.us/permitting/water_supply/water_rights/drought.html.

Seasonal Outlook

Data from the Climate Prediction Center at the National Weather Service indicate that a drought will "persist or intensify" in most of Texas through July. East Texas is expected to fare better. The National Oceanic and Atmospheric Administration predicts that most of Texas will experience below-normal precipitation this summer, and all of the state will see above-normal temperatures.

2005 Precipitation

Percent of Normal



Precipitation Barometer

Most parts of Texas entered 2006 with a rainfall deficit. The fall and winter were particulary dry, setting the stage for a serious drought this year. The exception was El Paso, which enjoyed more rain than normal in 2005.

City	Normal (inches)	2005 (inches)
Abilene	23.8	19.7
Amarillo	19.7	15.0
Austin	34.7	22.3
Brownsville	27.5	14.1
Corpus Christi	32.3	25.3
Dallas-Fort Worth	34.7	19.0
El Paso	9.4	12.8
Houston	47.8	41.1
Lubbock	18.7	15.0
Midland	14.8	14.0
Port Arthur	59.9	35.3
San Angelo	20.9	20.4
San Antonio	33.0	16.6

Note: Normal refers to the average annual rain from 1971 to 2000.

Source: Office of the State Climatologist, Texas A&M University

Texas Recordsetters

Rainfall from March through February is monitored each year to determine statewide conditions before temperatures start to heat up. The following 12-month periods were the driest, according to records dating back to 1895.

Year (Mar-Feb)	Precipitation (inches)
1917-1918	14.90
1956-1957	15.69
1924-1925	19.60
2005-2006	19.88
1901-1902	19.91
1954-1955	20.12
1910-1911	20.32
1951-1952	20.93
1963-1964	21.27
1939-1940	21.52

Source: Office of the State Climatologist, Texas A&M University

direct impact on public water systems, especially those that are unprepared. Systems that fail to plan ahead and follow their drought contingency plans might see the spigots go dry.

By mid-April, 111 public water systems had implemented some stage of their drought contingency plan. Sixty-six systems were urging voluntary water-use cutbacks (Stage I), and 45 had invoked mandatory restrictions (Stage II), such as reduced lawn watering.

"We sent a heads-up letter in early January telling them to get prepared," recalls Mike Lannen of the TCEQ Public Drinking Water Section. "We said they should review and prepare to implement the stages and restrictions of their drought contingency plans. We also urged them to address pipeline leaks and unaccounted-for water losses, and to complete preventative maintenance. All this needed to be done before the spring and summer when water demands increase."

With the experience drawn from previous droughts, public water systems "are getting better at managing existing water supplies," Lannen says. "But an extended period of drought can tax any system's ability to provide a safe and adequate water supply."

Since 1999, public water systems have been required by

Sorghum and other crops are having a difficult time this year because of the drought. Even when the rains come, the soil conditions quickly revert to dry. Erosion is becoming a problem as well.

state law to submit water conservation plans and drought contingency plans to the TCEQ—all in preparation for unusually dry years when water supply can become an issue. While the vast majority of water systems are able to withstand even severe droughts, it is still vital that all utilities be prepared for instances such as reduced supplies, distribution problems, or system outages.

The TCEQ offers assistance in helping water utilities draft their drought contingency plans. The agency also reviews those plans every five years. The current review got under way in May 2005, when about 1,000 plans were submitted. Of the 560 plans reviewed as of mid-April, 479 were approved. The 81 rejected plans will have to be revised and submitted again. More than 200 plans have not been received. Utilities failing to comply could face enforcement penalties.

Throughout the summer, regional staff in the TCEQ's 16 field offices "will be our eyes and ears" for monitoring how water systems are faring, says Lannen. While utilities do not have to report voluntary water-use restrictions to the TCEQ, they are required to report mandatory restrictions.

For communities that encounter troubles, Lannen says the TCEQ will help systems examine their funding options

continued on page 6

Drought Database

The TCEQ maintains a database to record the public water systems that enact some stage of a drought contingency plan—voluntary or mandatory. The database was created in 1996, when the state found itself in a serious situation with more than 300 systems grappling with drought conditions.

Year	Number of systems activating drought plans
1996	352
1997	1
1998	317
1999	57
2000	252
2001	144
2002	51
2003	64
2004	61
2005	49
2006	111 (as of April 14)

Making Every Drop Count

After a long dry spell, a rain shower is welcomed by people and plants alike. Nothing can invigorate a yard or garden like a good soaking. Unfortunately, much of that precious resource runs off rooftops, down the street, and into a storm drain.

Deciding that nature's bounty is too valuable to waste, many Texans have begun to capture and save rainwater for all sorts of uses.

Just how people are harvesting rainwater—and what they are doing with it—is a principal topic of a year-long study in which the TCEQ is a participant.

The Rainwater Harvesting Evaluation Committee was created by the Legislature in 2005 to study the potential benefits of rainwater harvesting in Texas. The panel also is examining health concerns related to indoor use of rainwater and ways that catchment systems can work in tandem with municipal water systems.

In addition, by year's end the TCEQ will be required to establish water quality and treatment guidelines for the domestic use of harvested rainwater, including health and safety measures for rainwater collected for drinking.

"As you look around the state, you'll find people who collect rainwater not just to benefit their landscapes, but also for drinking, cooking, and bathing," says Tony Bennett, a member of the TCEQ's Water Supply Division and the agency's representative on the evaluation committee. He says the state is interested in setting minimum standards to safeguard the health of people who use rainwater indoors.

"When rain begins to fall, it's pure," explains Bennett. "But then it passes through the atmosphere, which isn't always clean, and it lands on tops of houses or in gutters that may have dirt or leaves, even animal waste. By the time that rainwater is captured, it may no longer be clean or healthy to ingest."

Photograph by the Edwards Aquifer Authority

Visitors to the Edwards Aquifer Authority in San Antonio are sure to notice the 2,000-gallon metal cistern, which collects rainwater for maintaining the landscape.

The Real Deal

Users of rainwater laud its attributes. Rainwater is free of disinfection byproducts, such as man-made contaminants. The taste is good, plants thrive on it, and appliances last longer. Best of all, it is free.

Capturing rainwater also reduces urban runoff. Storm water typically picks up contaminants and debris before emptying into storm drains and eventually into lakes and rivers.

Systems designed to capture rainwater range from a simple downspout positioned over a barrel to elaborate configurations of pipes, tanks, and irrigation lines. Not only homes, but schools, government buildings, and industrial plants have

joined the rainwater harvesting movement. The Edwards Aquifer Authority in San Antonio, for example, has a 2,000-gallon metal cistern and a 500-gallon polypropylene tank that store rainwater for landscaping use at its headquarters.

Along with these systems come maintenance responsibilities, such as regularly cleaning rainwater diverters and tanks, maintaining pumps, and filtering water. For indoor uses, owners are encouraged to replace filters, maintain disinfection equipment, and have water tested, especially if used for drinking or cooking.

The committee also is studying how rainwater harvesting could help communities address water shortages, says Bennett.

"The depletion of groundwater sources and the impact of dry years like this one give greater weight to alternatives," says Bennett. "Rainwater harvesting is one option that offers tremendous value for the investment, especially for people in rural areas where water sources are limited."

Membership on the evaluation committee also includes representatives from the Texas Water Development Board, the Department of State Health Services, and the American Water Works Association.

Hari Krishna, a TWDB senior engineer and past president of the American Rainwater Catchment Systems Association, is the presiding officer.

The committee's report is due to the Legislature on Dec.1.

Rainwater Resources

The Texas Water Development Board is a good source of information on rainwater harvesting. One of the best resources is the "Texas Manual on Rainwater Harvesting," an 80-page handbook on water quality and treatment, system-sizing guidelines, and the history of rainwater use. The TWDB also offers a calculator to help property owners design a system that suits their needs. Visit www.twdb.state.tx.us.

Dry Times Ahead *continued from page 4*

and evaluate the need for wells, pipelines, and interconnects with neighboring water systems. "They still have to go through our plan review for construction approval, but when it's a drought issue we promise to fast-track the review."

This spring, the TCEQ received an increasing number of drought-related calls about the lack of water availability for new surface water rights in the Brazos River Basin. Stream flows were sufficient to meet the requirements of water rights owners, and no restrictions were necessary, according to agency officials. However, available water for new appropriations was decreasing, and the search for long-term dependable alternative sources of water remained a priority.

Reservoir and Groundwater Levels

Statewide, storage in the state's major reservoirs stood at 28.3 million acre-feet (af), or 82 percent of conservation storage capacity, which was below normal for the spring season. A year earlier, storage was at 31.4 million af, or 91.2 percent of capacity. All regions of the state recorded decreases in storage over the year, according to the Texas Water Development Board (TWDB), which monitors 77 reservoirs.

In February, the Barton Springs/Edwards Aquifer Conservation District moved from a Stage I to a Stage II drought declaration, thereby requiring a 20 percent reduction of water use. Homes and businesses in the district south of Austin rely on the aquifer as their primary water source. Falling levels in the aquifer and reduced spring discharges can leave water-supply wells empty and threaten endangered species in Barton Springs.

Agricultural Outlook

After a dry fall and winter, spring rains enabled farmers in some parts of the state to plant summer crops. Due to the extreme soil-moisture deficit, however, the showers brought only limited relief. The winter wheat crop was declared a total loss, and a late freeze in March damaged much of what was emerging at the time, such as peaches, corn, and sorghum.

Producers report that conditions in the Rio Grande Valley

continued on page 13

New Landfill Regulations Take Effect

Overhaul of rules brings standards up to date

In their first major revision since the early 1990s, the state's municipal solid waste rules have been updated and fine-tuned to better reflect today's industry.

The new rules took effect March 27, after lengthy deliberations by the Commission and considerable input from the public and industry representatives. In addition to reorganizing the solid waste rules and improving readability, the Commission also made dozens of substantive changes, including enhanced environmental protection. The final passage capped a rewrite process that took two years.

One reason for the overhaul was to keep up with the changes in the industry, said Steve Shepherd, TCEQ staff attorney.

"When most people hear the term 'municipal solid waste,' they think of the community landfill. But the business of managing solid waste has become so much broader than that," he says. "Now it involves activities like disinfecting and incinerating medical waste; transporting and tracking different types of waste; and handling waste, such as that from restaurants, which can be processed and recycled."

Shepherd said that in recent decades the state's solid waste rules only underwent revisions piecemeal as the need arose—for example, to address new site-operating procedures or to implement legislation.

But this year marks the most sweeping changes in several decades (except for 1993, when the regulations were revised to incorporate new federal rules developed by the Environmental Protection Agency).

The new TCEQ rules mostly affect permit applications. With few exceptions, existing landfills and the applications pending before March 27 were not affected.

Texas had more than 200 open landfills in 2005. These sites handled almost 29.4 million tons of refuse that year. Based on estimated population, that worked out to about 7 pounds per Texan each day. Excluding construction and demolition debris and treatment-plant sludge, the per capita rate of disposal was about 5 pounds a day.

Some of the major changes contained in the new rules package are as follows.

- Previously, landfills were required to have a 50-foot buffer between the edge of the landfill and the property line. The buffer requirement has been expanded to 125 feet to better protect nearby neighborhoods.
- For years, landfills have been required to install groundwater monitoring wells to detect leaking pollution. But because there was no clear-cut requirement for spacing, it was common to see wells located every 1,000 feet or more. Now, wells generally have to be spaced at least every 600 feet.
- Run-off controls must be increased while a landfill is being actively operated, rather than waiting years, or even decades, for the operating life of the facility to end. This requirement affects existing facilities; in fact, all permits will need to be revised to comply with this new rule.
- Federal rules on leak prevention generally require landfills to have a two-foot clay liner at the bottom

Landfills and Other Facilities Affected by Rule Changes

The TCEQ classifies municipal solid waste facilities according to the methods of processing or disposing of waste. Here are the classifications and the number of "open" facilities in each.

Type I—178 **The standard landfill for the disposal of municipal solid waste.**

Type IV—49 **Landfills authorized to accept only brush and construction or demolition waste.**

Type V—248 **Solid waste processing facilities, such as transfer stations.**

Type VI—1 **Facilities implementing a new or innovative method of using municipal solid waste, such as energy recovery.**

Type IX—12 **Facilities conducting landfill mining or the recovery of energy, material, or gas for beneficial use.**

Note: An 'open' facility is either actively accepting waste or is inactive, but the permit remains in effect.

Vehicle Mercury Recovery is Under Way

Until model-year 2003, many American cars and trucks used convenience switches containing mercury, a toxic substance. The switches are part of the light assemblies found in the trunk or under the hood.

Through a voluntary program created by the Legislature, the TCEQ and the Alliance of Automobile Manufacturers are encouraging vehicle recyclers and auto-salvage facilities in Texas to remove mercury convenience switches before the vehicles are shredded for recycling.

If the switches are not removed, the mercury could be released into the atmosphere when the scrap vehicles are smelted.

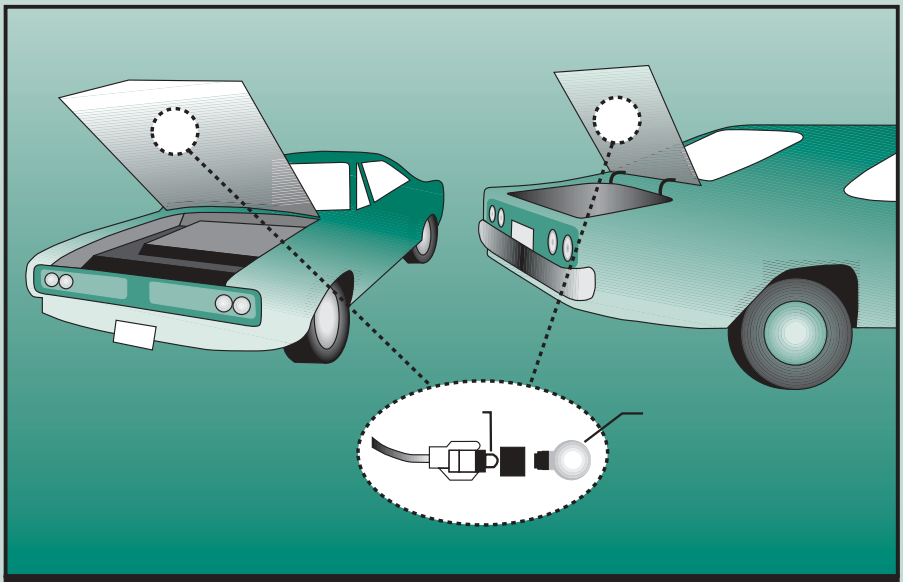
By participating in the recovery program, the recycling or salvage facilities do not have to pay any of the costs associated with storing, shipping, or processing mercury convenience switches removed from disassembled vehicles.

The Alliance is providing storage buckets to participating facilities, along with instructions on how to locate and remove the switches. The Alliance also pays for mailing the recovered materials to an approved processing facility, where the mercury will be recycled. Facilities taking part in the program can qualify for regulatory incentives authorized by the Legislature.

The TCEQ will track the number of convenience switches recovered annually, as well as the amount of mercury—by weight—removed and processed through the program.

Any auto-salvage or scrap-metal recycling facility can enroll in the program by contacting the TCEQ at 1-800-447-2827.

Information is available at www.48secondsolution.org.



Mercury removal: Automakers and the TCEQ are working to get mercury pellets removed from vehicles that are to be scrapped or recycled. The mercury is part of the lighting apparatus typically found in the trunk or under the hood.

Source: End of Life Vehicle Solutions

overlaid with a thick plastic liner. Some landfills already in operation at the time of that requirement simply built higher without having to construct the more protective liner. State rules now require facilities to install a liner between waste already in the landfill and the new waste to be disposed of in vertical expansion areas.

- Local governments may now request notification every time a facility alerts the TCEQ of compliance problems, such as fire or erosion.
- Floodplain maps prepared by the Federal Emergency Management Agency may be submitted by applicants, but the TCEQ can now consider other information in making a final determination of floodplain locations.
- From now on, the TCEQ will conduct public meetings on applications for most registrations only when there is significant interest in the community. This revision addresses a situation in which the agency was required to travel to locations around the state to meetings that drew little or no attendance. The applicant will be required to provide notice of the opportunity for such a meeting.

Winners for the Environment

The 2006 Texas Environmental Excellence Awards were presented as part of the TCEQ Environmental Trade Fair and Conference in May. The annual awards in 10 categories are given to environmental projects demonstrating the highest achievements in resource conservation, waste reduction, and pollution prevention.

INNOVATIVE TECHNOLOGY
AUSTIN ENERGY

Austin's Seaholm Power Plant, a 1950s electric plant, was retired from service in 1996. Rather than demolish it, city leaders chose to retain the structure for redevelopment. Much of the building's concrete floor, however, was saturated with PCB-contaminated oil. PCB (polychlorinated biphenyl), an industrial chemical once widely used in electrical equipment, is a persistent environmental contaminant.

Removing the contaminated concrete would have compromised the structural integrity of the building, and adding a layer of concrete would have exceeded the floor's load-bearing capacity. Razing the plant would have generated tons of hazardous material and cost the city millions of dollars.

Austin Energy, the city's electric utility, worked with experts to develop a new method for encapsulating the PCB contaminants with a fiber-reinforced epoxy coating. The encapsulation worked so well that the building now qualifies for unrestricted use—industrial or commercial—and is the first facility of its kind to receive the Environmental Protection Agency's Ready for Reuse designation among sites subject to the Toxic Substances Control Act.

Seaholm Power Plant is slated to begin its new life as a mixed-use development including parkland, shops, restaurants, and a residential tower.

LARGE BUSINESS/TECHNICAL
AMERICAN AIRLINES

At the American Airlines Maintenance Base at Alliance Airport in Fort Worth (AFW), the airline's environmental department saw an opportunity to recycle water and minimize hazardous waste, thus reducing environmental impact while saving money. The team gathered bids from outside contractors, but was discouraged by the high cost of implementing a recycled-wastewater system and a program that tracks AFW's waste reduction.

Needing to prove a return on investment, plant team members came up with their own cost-saving solutions. They expanded a reverse osmosis system to treat 40 million gallons of wastewater, converting an existing treated-effluent tank into a reverse osmosis tank. They re-engineered and upgraded an outdated automation control system. They also created an inspection and inventory bar code system to track hazardous waste.

The project has allowed American Airlines to reduce its total water usage at AFW from 24 percent to 36 percent the last three years and to reduce costs by almost $1 million. In addition, the amount of hazardous waste generated in 2000 was reduced by more than 50 percent.

"Conserve, preserve, and protect" is the theme of the TCEQ's Texas Environmental Excellence Awards.

LARGE BUSINESS/ NONTECHNICAL
ABITIBI-CONSOLIDATED, INC. RECYCLING DIVISION

Students, teachers, and individuals across the state are turning paper into colorful playground equipment, library books, and scholarships through Abitibi-Consolidated's Paper Retriever program.

Through the program, Abitibi-Consolidated provides free on-site recycling bins and collection services to schools, churches, and other nonprofits—then pays the organizations for the paper they collect.

Paper Retriever trucks pick up the recovered paper and take it to Abitibi's sorting facilities, where it is processed for recycling into new paper products. The program complements existing community recycling efforts by giving people new ways and new reasons to recycle year-round. It also teaches

good recycling habits by providing free educational materials in English and Spanish.

Paper Retriever, which began in Houston in 1995, reaches more than 3,500 organizations and has expanded throughout North America and the United Kingdom. In Texas, participants in 2004 recycled 278,000 tons of paper and earned more than $1 million.

SMALL BUSINESS

TEXAS INDEPENDENT AUTOMOTIVE ASSOCIATION

Thanks to a statewide effort led by the Texas Independent Automotive Association (TIAA), automotive shops are doing their part to clear the air through voluntary emissions testing, car care clinics, and a comprehensive public education campaign.

Partnering with the TCEQ and the Texas Department of Transportation in the "Drive Clean Across Texas" campaign, TIAA members help educate the public on proper vehicle maintenance. Additional public outreach activities include car care clinics and emissions testing events, as well as instruction at local high schools and career fairs.

Environmentally aware TIAA members earned nearly five times as many compliance certificates through the TCEQ's Compliance Commitment Partnership in 2005 than in 2003. Members recycle hundreds of thousands of gallons of oil and antifreeze, more than 850,000 oil filters, and thousands of batteries each year.

GOVERNMENT

BRAZOS RIVER AUTHORITY

When the poultry industry began to expand in the Brazos Valley, community leaders recognized the opportunity for economic growth, but were concerned about potential risks to water quality. Residents brought their concerns to the Brazos River Authority (BRA), which develops and manages the water resources of the Brazos River Basin.

With support from the poultry industry, the involved communities, and elected representatives, the Waco-based BRA secured federal funding for an integrated resource planning project called "Quality Water for the Brazos Community."

The focal point of the project was a watershed master plan that reflected a wide range of water quality issues, including continuous water quality monitoring, aquatic habitat studies, and resource planning through a task force.

Water quality programs and public outreach initiatives began before the plan was completed in August 2005. Six years of baseline water quality data were collected as a benchmark for water quality monitoring. A $771,000 incentive program helped fund better facilities and practices at poultry operations to protect water quality. Another incentive fund was established to encourage non-poultry growers to use poultry compost as a soil amendment.

Also two illegal dump sites along the Brazos River were cleaned up by more than 150 volunteers.

CIVIC/NONPROFIT

GOODWILL INDUSTRIES OF CENTRAL TEXAS

Goodwill Industries of Central Texas provided jobs or training to more than 10,000 people in 2005. Many of those services received funding from an innovative program that salvages thousands of computers and peripherals for reuse and recycling, and keeps them out of landfills.

Central Texas Goodwill manages a state-of-the-art computer recovery operation, in which donated computers are rebuilt for resale at two of its retail outlets. Goodwill's Computer Works stores are located in Austin and San Antonio. Systems and parts determined unusable are recycled or disposed of in an environmentally responsible way.

Ninety percent of the revenue generated by Computer Works helps put people to work through job placement, workforce training, and other employment services. People with disabilities and other barriers to employment receive training in computer technology, inspection, and repair through Goodwill's recycling center. Some gain full-time jobs in the center or at a Computer Works store.

In 2005, both Computer Works stores recycled or resold more than 2,200 tons of computers and peripherals that would have gone to a landfill. Reusing 28 percent of this equipment also saved more than 30,000 tons of natural resources necessary for the manufacture of new products. The first Goodwill program of its kind, Computer Works serves as a national model for other Goodwill partners seeking an environmentally responsible solution to disposing and reusing electronic waste.

EDUCATION

BAMBERGER RANCH PRESERVE

Students of all ages come to learn at the Bamberger Ranch Preserve in Blanco County. They explore ancient dinosaur tracks, spelunk in a man-made bat cave, and study watershed management techniques.

Preserving the 5,500-acre ranch is

the work of David Bamberger, who purchased the land in 1969 and soon discovered the ranch was in need of special care. Ashe juniper had overrun the land, choking the water supply and leaving little native vegetation or wildlife.

But after several years of removing the woody juniper and replacing it with native grasses, he watched historic artesian springs come back to life. These springs form the headwaters of Miller Creek, an important feeder creek to the Pedernales River and the lower Colorado River.

The ranch also supports a number of endangered species.

Still a working ranch, the Bamberger Ranch Preserve welcomes 3,000 to 5,000 visitors a year. Most of the visits are educational—school field trips or adult workshops covering topics such as land stewardship, native grasses, and trees and shrubs.

AGRICULTURE

TEXAS WATER RESOURCES INSTITUTE

The Range Revegetation Pilot Project at the U.S. Army's Fort Hood is an example of how to turn two environmental challenges into a win-win solution.

Over six decades, extensive use of training vehicles on Fort Hood's 67,000-acre west range near Killeen has left the land barren, rock-hard, and prone to erosion. Sediment run-off threatened water quality in the Cowhouse Creek watershed and Lake Belton, the main drinking water source for surrounding communities.

To tackle these issues, the Texas Agricultural Experiment Station (TAES) partnered with Fort Hood and the USDA Natural Resources Conservation Service to bring soil relief from an unlikely source: composted cattle manure from the North Bosque River watershed. The run-off from dairies has been identified as a source of phosphorus in the Bosque River.

Research teams at the Texas Water Resource Institute, a division of TAES, and the Blackland Research and Extension Center developed a pilot project to determine whether the nutrient-starved land could benefit from applying composted manure, topped with a native seed mix.

Initial results show that adding compost and other land management practices are helping to restore vegetation and reduce erosion—while removing excess nutrients from the watershed. To date, the project team has applied nearly 15,000 tons of composted manure over 600 acres of rangeland.

YOUTH

WESLACO HIGH SCHOOL

In South Texas, Weslaco High School's botanical garden serves as an outdoor learning lab, where students cultivate lessons on resource conservation, nutritious foods, and community service.

Since 2004, about 150 students have worked to create and nurture the gardens, which beautify a quarter of an acre next to the school. More than 30 species of plants, trees, herbs, and flowering shrubs thrive in this educational ecosystem, including several varieties of fruit and vegetables used in nutrition curriculum. Students have added butterfly gardens, a pond habitat, and a cactus garden. Under the direction of the Texas A&M Agricultural Experiment Station, they helped install a drip line and sprinkler irrigation system.

Every year, the youngsters gather fresh produce and donate it to the Rio Grande Valley Food Bank. They also plant trees in the gardens and throughout the Valley as part of the Rio Reforestation Project. The gardens also host a community celebration of nature, where students receive Junior Master Gardener certifications from the Texas Cooperative Extension.

INDIVIDUAL

BRENT EVANS of BOERNE

As lifelong volunteer environmentalists, Brent Evans and wife Carolyn have led the effort to create the Cibolo Nature Center in Boerne, transforming a thicket of woods and marshland into a tranquil nature trail and full-scale learning center.

Evans has another vision of a regional system of parks and natural areas that will provide outdoor recreation, encourage water conservation, and protect wildlife habitat. Like the Cibolo project, he is not tackling this one alone. Evans knows how to pull the community together.

When the Master Plan for Parks and Open Space was presented to the Kendall County Commissioners Court, it was unanimously adopted. When a $5 million parks bond went before the public, voters approved it. Evans laid the groundwork by seeking input from residents, public agencies, and environmental experts. He headed a community advisory committee and raised funds for a public interest poll to better understand public attitudes.

The parks system is moving forward. The county has identified the area's most environmentally critical areas and is proceeding with land acquisition and park development.

Partnering Up

Public and private participation enables monitoring network to expand

Visitors to the Witte Museum in San Antonio step inside to see exhibits on history and natural science. Soon they will be able to step out back to see the workings of a monitoring station analyzing water quality of the San Antonio River.

The monitoring equipment, located on the museum grounds in Brackenridge Park and connected to the H-E-B Science Treehouse, will send readings to the TCEQ every hour. The data can be viewed at the agency's Web site and eventually at the Witte.

The monitoring station has been incorporated into the museum's "Take It to the River" exhibit, which explores the history of water use and aquatic life in the San Antonio River.

Marise McDermott, president and CEO of the Witte, said the monitoring activity blends well with the museum's permanent outdoor water features, as well as H-E-B's ecoscience program next door. "In observing the river and the creatures that live in the water, our visitors learn why water quality is so important," she said.

Expanding Network

The Witte site is the newest in the TCEQ's growing network of water quality monitoring stations located in

Monitoring Sites in the San Antonio Area

All the water quality monitoring sites in the San Antonio River Basin are supported by local sponsors. These public and private organizations have supplied funding to establish the stations for the continuous monitoring of key water bodies. All six monitoring sites are maintained by the U.S. Geological Survey.

Sites and sponsors:

San Antonio River near Elmendorf
- CPS Energy
- San Antonio Water System

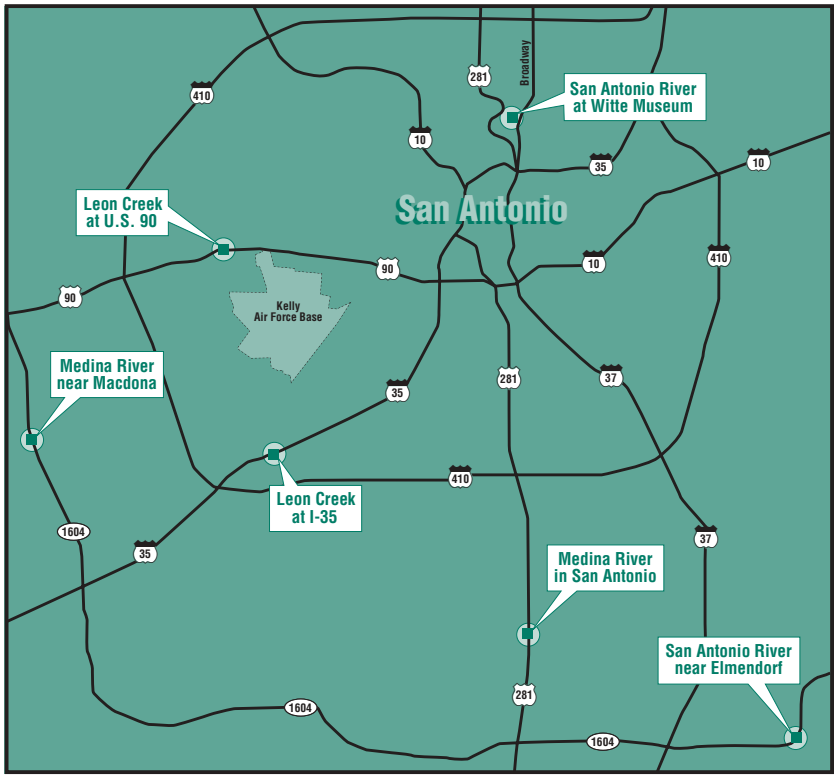
Medina River in San Antonio
- San Antonio River Authority

Leon Creek at Interstate 35
- City of San Antonio
- San Antonio Metropolitan Health District

Medina River near Macdona
- Bexar Metropolitan Water District

Leon Creek at U.S. Highway 90
- Public Center for Environmental Health

San Antonio River at Witte Museum
- H-E-B grocery stores
- Texas Industries Inc. (TXI)



lakes or on riverbanks around the state. The high-tech monitors, which are expected to number 30 by the end of this summer, have the capability to monitor, measure, and rapidly report results to the agency.

The new station and its educational components, due to be installed by July, will bring the total number of monitoring sites in the San Antonio River Basin to six—more than in any other urban area in Texas.

The San Antonio network has another distinction: all six stations are operated, maintained, and financed by entities other than the TCEQ.

Local partners have stepped forward and volunteered to provide the resources needed to bring this advanced monitoring equipment to Bexar County.

In the case of the Witte monitor, the co-sponsors are H-E-B grocery stores, with a $30,000 donation, and Texas Industries Inc., which gave $21,000.

Sponsors for already established network sites are the Bexar Metropolitan Water District, city of San Antonio, CPS Energy, Public Center for Environmental Health, San Antonio Metropolitan Health District, San Antonio River Authority, and San Antonio Water System.

All six sites are operated and maintained by the U.S. Geological Survey.

Unlimited Potential

Commissioner Larry R. Soward has said the monitoring network established in the San Antonio River Basin is "a prime example of what can be accomplished through public-private partnerships."

"Through this technology, the TCEQ is able to continuously monitor water quality in several of the basin's rivers and streams. When troublesome patterns begin to develop, we can take immediate action to track down and solve the problem," he said.

Typically, monitoring stations take regular readings of temperature, flow rate, turbidity, dissolved oxygen, pH levels, and other conditions.

Water quality readings from all over the state are transmitted via satellite or computer modem to the TCEQ, where results are posted hourly at **www.tceq.state.tx.us/goto/watermon**.

Soward predicts that more partners will come forward to participate in the monitoring network.

He expects to see additional companies, local governments, and even colleges and universities come on board.

"The potential here is unlimited," he noted. "Working together, we can extend environmental protection further than we believed possible."

Dry Times Ahead *continued from page 6*

and along the Gulf Coast have been exceptionally dry. In fact, dryland farmers located between Victoria and the Rio Grande hold little hope for normal production. "There's nothing green in those fields but mesquite trees," says Travis Miller, a soil and crop expert from the Texas Cooperative Extension.

Miller adds that continued high winds and drying conditions across the western portion of the state were contributing to significant wind erosion of soil.

Meanwhile, livestock producers were struggling to cope with a shortage of grazing pasture. The Texas Department of Agriculture reported that the number of cattle going to livestock auctions in early spring was 12 percent higher than a year earlier, reflecting ranchers' inability to find hay. In previous droughts, according to TDA officials, hay was imported from other states, but higher fuel prices are making that option less affordable.

Looking Ahead

As Texans enter what could be a difficult summer, the outlook for water supplies and resources in the coming decades remains a matter for the policy makers.

The TWDB is coordinating work on a revised state master plan for developing and maintaining the statewide water resources.

After several years of work at the local and regional levels, 16 regional planning groups have submitted strategies geared to meeting the water needs of each region. Final adoption of the regional plans is expected this summer. Recommendations for a statewide water plan will be sumitted to the Legislature in 2007.

Drought is no stranger in Texas. Long dry spells are part of the climatic conditions here. But droughts can develop slowly before unleashing a devastating impact, affecting the environment and the public's health and safety. Prolonged drought also can carry economic consequences that are just as serious as floods or hurricanes. That is all the more reason for planning in advance and managing the consequences as much as possible.

TCEQ Veteran Retires

The TCEQ has said farewell to its longest-serving commissioner, R.B. "Ralph" Marquez, who joined the agency in 1995.

The newly consolidated environmental agency was only two years old when Marquez was tapped by then-Gov. George W. Bush to become one of three commissioners that constitute the agency's governing body.

Over the next 11 years, Marquez immersed himself in the full range of environmental issues that have been important to Texas and even propelled the state to the forefront of environmental innovations.

As the Commission worked to develop the state plan for improving air quality in urban areas, Marquez became the prime supporter of inventive technologies, such as a rapid-response monitoring system that detects pollution patterns in airsheds. This pioneering system, now being applied to watersheds, is considered a national model.

He was instrumental in the formation of the Environmental Commission of the States and served on the Environmental Protection Agency's Clean Air Act Advisory Committee.

Marquez also was engaged in border issues. He helped organize the first meeting of all the states on either side of the U.S.-Mexico border, and assisted in negotiating a settlement with Mexico to resolve differences over the water-sharing treaty.

Marquez, a native of Cuba, immigrated to Austin in 1959 to study chemical engineering at the University of Texas. He and his family lived in Texas City for 30 years while he worked for Monsanto Co.

R.B. "Ralph" Marquez retired March 31, after a record-setting 11 years as commissioner. During that time, he became known as a champion of innovative technologies to advance environmental protection. His parting advice to staff: "Convert information into knowledge and act swiftly on it."

PD 020/06-2

Texas Commission on
Environmental Quality MC195
PO Box 13087
Austin TX 78711-3087

PRESORTED
FIRST-CLASS MAIL
US POSTAGE PAID
AUSTIN, TX
PERMIT NO. 1967

RETURN SERVICE REQUESTED